UNEQUAL REGIONAL DEVELOPMENT IN RURAL VIETNAM: SPATIAL DISPARITIES AND POLICY CONSIDERATIONS

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ABSTRACT

In Vietnam, the poor have long been assumed to be the ethnic minorities mostly living in the highlands. After more than two decades of introducing *Doi moi*[2] policy into the economy, along with having enjoyed various improvements in social and economic aspects, the disparities between the majority and ethnic majorities, the lowlands and the highlands, and between regions, still have been widened. This paper aims at examining income inequality, its affecting factors in rural areas, and exploring the current situation of regional economic disparities using both development policy review and econometrics approaches. Data from Vietnam Household Living Standard Survey (VHLSS) 2008 was used in the study. The expenditure per capita was employed as the dependent variable to regress with household characteristics and resources. In addition, the regional dummy variables were employed to show the different effects from different geographic locations. The results showed that the household characteristics and resources such as education level, perennial land area, water surface area, and the accessibility to infrastructure facilities such as road, electricity and local market had positive effect on expenditure. Furthermore, the North Central Coast region showed negative impact on household expenditure. Interestingly, this finding does not absolutely follow the hypothesis and indicates that the economic development strategy and polices should be adjusted to decrease the gap among regions based on their economic advantages for balancing the economic situation of the whole country in the future.

Keywords: Inequality, Disparity, Regional Development, Rural Development, Vietnam

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[2] *Doi Moi* is the economic renovation policy started in 1986

INTRODUCTION

In Rural Vietnam, the poor have long been assumed to be the ethnic minorities mostly living in the highlands. The economic development in Vietnam after the introduction of *Doi moi*[3] resulted in a significant reduction in the poverty rate from 58% in 1993 to 14% in 2008 (Vietnamplus, 2009), and an annual growth rate of above 7% a year between 1990 and 2008. Vietnam is set to join the middle-income countries in 2011 (Vandermoortele & Bird, 2010). However, inequalities between the rich and the poor, the lowlands and the highlands, the rural and the urban, as well as the ethnic lines or among difference regions have been a serious concern among policy makers (Epprecht, Müller, & Minot, 2009; Vandermoortele & Bird, 2010; Walle & Gunewardena, 2001), especially in the rural areas where 75% of population were living and tend to be poorer compare the urban ones. These gaps arise from the differences of culture, language, custom, and the ability to access credit and technology. The difference between ethnic minorities is also considered as a dimension for equality (Heltberg, 2003; Walle & Gunewardena, 2001). Understanding the dimensions of income disparity is useful in understanding the effectiveness of policy in poverty reduction and economic development. The issue of unequal regional development has been a concern in other publications such as Hodgson (2007). Furthermore, the concerns of policies for the next stage of economic development should focus on the geographic location rather than targeting the poor. Therefore, finding of the low income regions and addressing their determinant factors have an important implication for rural and economic development policy and strategy.

The objectives of this paper are to examine the income disparity and unequal regional economic development in rural Vietnam. This study, however, differs from other previous researches in some aspects. First, it uses the regression-based approach rather than Gini coefficient or other indices to measure disparity level. Using regression-based approach can explain the contribution of difference factors to the disparity level. Secondly, using both development policy review and econometric approach can fully understand the reason of disparities from different points of view to the rural economy. Third, the model employed the regional dummy variables to differentiate this region to others in term of living standards. Finally, this paper will to explore the devolution of inequality dimensions in the rural areas compared to other research in the past.

The research questions are (1) how the disparity dimensions changes after the more than two decades of economic renovation and (2) which policies can intervene or harmonize the disparities in the rural economy.

This paper is organized into five sections. After the introduction, the related literature review of inequality measure including the review of development policies are presented in the second section. The third section discusses the methodology with the econometric specification, the detail descriptions of the dataset, and explanatory variables. Results and discussions are presented in the fourth section. The conclusions and policy implications are found the fifth section.

LITERATURE REVIEW

Income inequality measures

Income inequality in the paper refers to "economic inequality" between groups in population. There are many methods the measure inequality in the literature. Popular measure of income inequality is the Gini coefficients. This ranges the income inequality for 0 to 1, which 0 is the perfect equality and 1 is the perfect income inequality. Other measures are Theils T and Theils L, which allow decomposing the income inequality into parts such as rural and urban areas. Atkinson's class of income inequality is more general and it sometime be used (Haughton & Khandker, 2009). With the about measures of income inequality have the advantage that they do know to show the effecting factors to the income inequality level. In this paper, the authors will discuss more on the regression-based approach to explain the factors of income inequality by employing development policy review and an econometric regression model.

[3] *Doi Moi* is economic renovation policy program started in Vietnam in1986

Regression-based Approach

Income inequality can be measured by the differences of income or expenditure per capita. It is linked with skill, education, opportunities, happiness, health, life expectancy, welfare, assets and social mobility (Heshmati, 2004). The studies of income inequality have been conducted for more than the past three decades. This section examines the progress of income inequality on household studies, with special attention given to income inequality indices and regression-based composition approach.

Shorrocks (1980, 1982) decomposed income inequality by income sources and population subgroups. He mentioned "the quantitative significance of income variations associated with age, sex, race, occupation, the level of education, and so on". He argued that income is contributed by different sources, and that income inequality can be analyzed by the variances of these sources.

Oaxaca (1973) and Blinder (1973) developed the regression-based method for measuring income inequality. They used this method to measure inequality of wage in labor economics. They employed many variables known as "individual characteristics" in their regression, and separated their models into two groups to quantify the inequality of wage income. Their model tried to make an explanation for the reason of "whites earn much higher wages than blacks and males earn substantially higher wages than females". "Discrimination coefficient" was mentioned by both of the authors to explain why the differential wages exist in case of other "characteristics" do not change (Blinder, 1973; Oaxaca, 1973), and (Adger, 1999).

Fields & Yoo (2000) and Fields (2003) further developed the method by using income generating equation to "account for" or "decompose" inequality in a country and its change over time. Gunderson ((1989) identified the discrimination of wages between male and female. In defining the gap of wages, he proposed some methods such as narrowing defined occupation and regression wage decomposition. He applied the regression that breaks down wage differentials by the difference of "characteristics" and "structure" between male and female.

Pracharopoulos and Patrinos (1994) attempted to identify the ethnic discrimination in Latin American countries where almost all of the populations are indigenous peoples. They used multivariate regression analysis method popularized by Oaxaca (1973) and Blinder (1973). Their study concluded that indigenous people are poor, illiterate, and prone to health problems and disadvantage in earning. They also explained that less education is strongly correlated to poverty. Interestingly, their statistical results showed that much of earnings differential between indigenous and non-indigenous workers would disappear by equalizing human capital characteristics. They finally proposed that a further research should "combine the quantitative approach taken with qualitative analysis, such as the participatory-observation research approach (or participatory poverty assessment)". Without this qualitative data, probable reasons for the discrepancy, including race, access to training, and cultural values, are merely speculative.

Recently, Wan (2004) conducted a research on income inequality in China by employing the regression of household income and the effecting factors. His paper reviewed the methods of income inequality measurement, and the advances of regression approach. He applied the regression-based approach from Morduch & Sicular (2002) and Fields & Yoo (2000) instead of the traditional method. His empirical analysis resulted in using both conventional and regression approaches in measuring income inequality.

Vietnam's footprints on inequality measures

In Vietnam, Walle & Gunewardena (2001) have first applied the Blinder-Oaxaca approach in measuring the sources of inequality among the majority and ethnic minority groups. The model was modified to the situation of Vietnam by adding "geographic affects" to their composition for two reasons. First, in the Vietnamese economy, one important characteristic determining living standards is where people live. Second, omitting "geographic effects" could severely bias estimates of the return to non-geographic characteristics. They concluded that household income was strongly affected by location, education, and land. They recommended for the separation of the Kinh majority model of economic earnings with other ethnic minority groups in order to fight poverty.

Heltberg (2003) has also applied the regression-based composition approach developed by Oaxaca (1973) and Blinder (1973) in measuring spatial inequality in Vietnam. He employed household characteristics and sub-group indicators variables to regress log of expenditures against these variables. The data were extracted from VLSS in 1992/93 and in 1997/98. And he concluded that higher education is also important for income disparity. Besides,

the growing income disparity during Vietnam's reform period appeared to be caused by rising spatial income disparity as well as growing returns to higher education. Policy should strive to create the conditions for more equal returns to location. Adger (1999) argued that "income disparity is important source because of its relationship to other factors in the evolution of the agriculture economy such as the incidence of poverty and the sustainability of emerging income sources".

Recently, Epprecht, et al.(2009) used the VHLSS 1999 to investigate the remoteness of rural poverty in Vietnam. They concluded that rural poverty significantly increases with the geographic remoteness regardless to ethnicity and education. In addition, the local infrastructures such as local markets, health care facilities and schools are important for poverty reduction.

Review of economic development polices in Vietnam

Vietnam continues to introduce a series of economic, social and political reforms from Doi moi period until the present for the economic advancement and international integration of the country. The initial impetus for Doi moi was domestic reform due to the urgent need in agriculture production("Economic Integration and Vietnam's Development: Final Report," 2009). Afterward, the reforms were made in other sectors. The recent related major economic development policies can be categorized into three sectors such as industrial development, focal economic zone development, ethnic minority development and poverty reduction policies.

One of the most important factors that influence the livelihood of rural household is the land policy. Since *Doi moi*, there were several reforms on agriculture land policy has been conducted. These reforms focused on the land tenure rights and the rights of farmers in agriculture production. A remarkable point can help review the process of land reform. Soon after the decollectivisation in agriculture, "the first land law" was presented in the Resolution 10 (***Khoan 10***). According to ***Khoan 10***, the family household was endorsed as the basic unit of agriculture production and distribution. This policy resulted in changing Vietnam from a food importing country to the second biggest rice exporter in the world. In 1993, the Land Law was enacted which provided the land holder five rights on Land Use Certificate (LUC) are to transfer, to exchange, to heritance, to lease, and to mortgage. In 2003, one modification on the Land Law was made to secure the rights for both spouses in the LUC. These changes in the land regulations create the market for land that the rural households have the own right to make decisions on agriculture production and improve their income. However, still some issues exist in the land tenure that causes the different patterns of agriculture production between regions and especially between the North and the South.

Secondly, promoting industrial development policies makes a big effect on economic development in the last two decades (ICEM, 2007). The industrial development policies focused on the economic zones, industrial zones, and the urban areas where they have comparative advantages and leaving the rural and remote areas behind. The annual growth rate of industries is about 10 percent per year (ICEM, 2007). As a result, there are 96 industrial and export processing zones have been launched in cities such as Ha Noi, Hai Phong, Ho Chi Minh, Binh Duong, Dong Nai and Ba Ria Vung Tau because of good basic infrastructure and easy transformation conditions (Business-in-Asia, 2007).

The Economic Focal Region development policies are found in the Decree No. 145/2004/QD-TTg, 148/2004/QD-TTg, and 146/2004/QD-TTg(VPQH, 2004a, 2004b, 2004c). According to these documents, the country will form three Economic Focal Regions in the North Region, the Central Region and the South Region, respectively, from the year of 2010 to 2020. The development of industries, services, infrastructures is being prioritized to boost the economic situation. More recently, the Economic Focal Region in the Mekong Delta has been established under the Decree No. 492/QD-TTg (Minister, 2009). The GPD per capita is being targeted to increase some ten percent per year and the poverty will be almost eliminated in the year of 2020.

Concerning ethnic development policy, from the beginning of the country's independence declaration, the ethnic minorities groups are treated politically and economically equal. However, almost of them have low backgrounds of development; therefore, there is still gap between them and the majority. The government has always given more priorities and support for them with various development programs and projects. They can be listed out such as "135 program", "30a program" that have been launched in the ethnic minorities' areas for poverty reduction,

economic development, heath care, education, culture reservation (Hoa, 2008). Besides, the ethnic minorities have access to free services such as health care and education. As a result, the livelihood of ethnic minorities has been improved significantly. However, the gap still exists between them and it needs more and more efforts from government and policy makers in order to get fully reduced poverty and improved rural development.

Recently, the big program for poverty reduction has been implemented under the Decision No. **30a**/2008/NQ-CP by the government. In this program, there are 62 poor districts and 43 of them from the Northwest region are given priority for social and economic development (Kiwipedia, 2010). However, due to the limitation of development resources, this program mostly focuses on human resource development, capacity building, and poverty reduction direct support. Therefore, these regions having the poorest districts are still far from development compared to others of the country.

In conclusion, there are still some regions being left behind in terms economic development, giving then undue disadvantage compared to others. Given this situation, one may ask as to what kind of incentives the government needs to provide for these regions to catch up with the others.

Box 1: Major economic policies introduced since *Doi moi*

1986	The VI Congress of Vietnam Communist Party adopts economic policy reform (*Doi moi*).
1987	Promulgation of the Foreign Investment Law, opening of the economy; Promulgation of the Land Law, affirming the land use right of farming households.
1988	Reform of banking system; Resolution 10 of Vietnam Communist Party granting business autonomy to farming households.
1989	Elimination of the two price system; Elimination of many export quotas; Financial tightening of SOEs.
1990	Adoption of the Company Law and Private Enterprise Law, creating legal ground for operation to the private sector.
1991	Private enterprises are allowed to directly export and import.
1992	Pilot equitization of SOEs.
1993	Promulgation of the Law on Enterprise Bankruptcy, the Law on Environment, and the Land Law.
1994	1994 Elimination of export license for all commodities, excluding rice, wood and crude oil; Promulgation of the Labor Code; Establishment of state general corporations.
1995	Promulgation of the State Owned Enterprise Law; Vietnam joins ASEAN and AFTA.
1996	
1997	Elimination of all barriers for domestic rice trade; Private sector is allowed to export rice.
1998	Non-tariff and exchange control measures are introduced to regulate import, and protect domestic production during the Asian financial crisis.
1999	Adoption of the Enterprise Law; Implementation of VAT; Decree on free export and import right is issued
2000	Adoption of the Vietnam - United States Trade Agreement.
2001	Adoption of the program for arranging, renovating, developing and improving the efficiency of SOEs in the period 2001-05.
2002	Freely the interest rate of loans in credit organizations
2003	Promulgation of the Land Law 2003
2005	Competitive Law is become valid
2006	Private business is accepted in the National Communist Congress X. Viet Nam become the 150th member of WTO

Source: ICEM (2007); Wikipedia(2011) and authors' addition

METHODOLOGY

Econometric Specification

Fields (2003) proposed to the regression method the explain income disparity by affecting factors.

$$\ln Y_i = \alpha_i + X_{ij}\beta_{ij} + \varepsilon_i \quad (1)$$

where *i* is the *i*-th household and *j* is the *j*-th determinant factors. The linear regression is executed. The log of expenditure per capita is used as dependent variable as it was used in other previous researches (Heltberg, 2003; Walle & Gunewardena, 2001). Independent variables are extracted from household characteristics and resources.

Descriptions of the dataset

This study uses the data from Vietnam Household Living Standard Survey 2008. The descriptions of the total sample are in the below table.

The VHLSS is the dataset collected by the GSO with the technical support from the World. The survey was first conducted in 1993 and the next is in 1998. During the 2000s, this survey was made one per two year such as 2002, 2004, 2006, 2008, and 2010. The content of the survey is mostly about income and expenditure of both household from the rural and urban areas in eight regions of the country.

This sample is selected for the households who live in the rural areas only. The table 1 show the total sample of data used in the empirical model. These observations are categorized by different living regions in Vietnam.

Table 1: **Description of dataset by regions**

Region Code	Region Name	*Obs.*
RD	Red River Delta	1,431
NE	North East	1,026
NW	North West	351
NC	North Central	846
SC	South Central Coast	579
CH	Central Highlands	408
SE	South East	612
MD	Mekong River Delta	1,323
Total		6,576

***Source*: Authors' Calculation**

Figure 1: Vietnam map by regions

Table 2: Description of variables

Variable	Description	Unit	Mean	Std. Dev.
EXPELOG	Log of expenditure per capita (unit of expenditure: '000 VND)	1,000 VND	8.603	0.560
HHSIZE	Total number of family members	People	4.197	1.681
MARIRAL	Marital status of household head (married = 1, otherwise = 0)		0.829	0.376
ETHNIC	Ethnicity of household head (Ethnic = 1; otherwise = 0)		0.191	0.393
GENDER	Gender of household head, male = 1; female=0		0.798	0.402
AGE	Age of household head	years	49.764	13.685
AGESQ	Square of age of household head	years	2663.742	1486.927
EDUC	Education level of household head categorized by VHLSS from 0 to 11(illiterate=0,…, doctorate=11)		0.031	0.503
LEADER	Leadership of household head(leader=1; otherwise=0)		0.012	0.110
UNSKJOB	Unskilled job of household head(Un-skill=1; otherwise=0)		0.907	0.290
INSEMAN	Total number of household member who work in industries or services	number	0.301	0.595
RICELAND	Total area of land that household cultivates rice in a year	ha	0.285	0.778
ANTRLAND	Total are of land for annual trees	ha	0.153	0.435
PERETRLAND	Total area of land for perennial trees	ha	0.065	0.513
FORESTLAND	Total area of land for forestry	ha	0.035	0.599
WATERAREA	Total area of water surface	ha	0.022	0.222
GRASSLAND	Total area of land for grass	ha	0.001	0.028
RESILAND	Area of land for housing or construction purpose	ha	0.014	0.085
GARDENLAND	Area of garden	ha	0.000	0.010
TEMPLAND	Area of land for temporary purpose	ha	0.000	0.013
REMITTANCED	Weather household get remittance or not? (Yes=1; No=0)		0.871	0.335
ROADV	Is there road to the village? (Yes=1; No=0)		0.883	0.322
POST	Is there post office in the village? (Yes=1; No=0)		0.896	0.306
ELECTRIC	Can household access electricity? (Yes=1; No=0)		0.990	0.097
INTERMART	Is there inter-commune market in this commune? (Yes=1; No=0)		0.629	0.483
NE	Households who live in region NE (Northeast = 1; RD = 0)		0.156	0.363
NW	Households who live in region NW (Northwest = 1; RRD = 0)		0.053	0.225
NC	Households who live in region NC (North Central)= 1; RRD = 0		0.129	0.335
SC	Households who live in region SC (South Central Coastal)= 1; RRD = 0		0.088	0.283
CH	Households who live in region CH (Central Highlands = 1; RRD = 0)		0.062	0.241
SE	Households who live in region SE (Southeast = 1; RRD = 0)		0.093	0.291
MD	Households who live in region MD (Mekong Delta = 1; RRD = 0)		0.201	0.401
N = 6,576				

Source: Authors' calculation

RESULTS AND DISCUSSIONS

Household size

HHSIZE is the variable for the total number of household members and it shows the negative effect on the expenditure per capita. It is obvious that households with more members suffer a harder life than households with fewer. The marital status of the household head also affects positively on expenditure per capita. And the age of the household head makes the same impact. One of the important factors that affects to household expenditure is the ethnicity. The results show that the ethnic minority groups have lower expenditure than the majority. The income disparity between the ethnic minority and the majority are concerned in many researches since *Doi moi* launched in Vietnam.

Table 3: Estimates from Model Result

Variable	Coef.	Sig.	P>t
HHSIZE	-0.089	***	0.000
MARIRAL	0.117	***	0.000
ETHNIC	-0.445	***	0.000
GENDER	-0.006		0.782
AGE	0.042	***	0.000
AGESQ	0.000	***	0.000
EDUC	0.065	***	0.000
LEADER	0.041		0.479
UNSKJOB	-0.056	**	0.015
INSEMAN	0.015		0.180
RICELAND	0.034	***	0.000
ANTRLAND	0.048	***	0.004
PERETRLAND	0.086	***	0.000
FORESTLAND	0.021	*	0.030
WATERAREA	0.120	***	0.000
GRASSLAND	0.223		0.284
RESILAND	0.161	*	0.022
GARDENLAND	-0.455		0.436
TEMPLAND	0.268		0.551
REMITTANCED	0.016		0.365
ROADV	0.118	***	0.000
POST	-0.028		0.154
ELECTRIC	0.215	***	0.001
INTERMART	0.020		0.117
NE	0.036		0.099
NW	0.018		0.597
NC	-0.138	***	0.000
SC	-0.014		0.562
CH	0.071	**	0.013
SE	0.256	***	0.000
MD	0.045	*	0.022
CONS.	7.576	***	0.000
R-squared	0.2814		
Adj R-squared	0.278		
Number of obs.	6,576		

*** Significant at 1%;
**Significant at 5%;
*Significant at 10%

Ethnicity

The variable of *ETHNIC* is found as the negative factor to the household living standard. The disparity between the majority and the ethnic minorities has long been concerned in the literature. Vietnam has 53 ethnic minorities who live in all regions of the country but mostly concentrated in the highland areas. The living standard of the ethnic minority is tended to be lower than the majority despite numerous policies introduced to assist these groups (Baulch, 2008). The result from this research is also the evidence of the disparity between the majority and the ethnic minorities. Therefore, the development policies should be consider about the sustainability of its impacts for improve the living standard of these less developed groups by combination of policies to focus on both ethnic people and less developed regions.

Education

The variable of education level is *EDUC* has found to affect positively to expenditure per capita. However, the number of household head who has high level of education is low in rural areas. Therefore, improving the education level is also a good way to improve the living standard for the rural household.

Job status

The job statuses of the household head are found in the dummy variables of *LEADER*, and *UNSKJOB*. The result shows that households whose heads have professional skills have higher living standard than those with the household head who has no professional skill.

Land resources

As mentioned above, the *Doi moi* policy was started with the agriculture production reform. The change of land tenure is one of the most important for agriculture production. This is one of the reasons for the growth of agriculture productivity and rural income.

The land resources are found in the variables of *RICELAND, ANTRLAND, PERETRLAND, FORESTLAND, WATERAREA, GRASSLAND, RESILAND, GARDENLAND, TEMPLAND.* They stand for area of rice cultivation per year, area of annual crops, area of perennial trees, area of forest land, area of water surface, area of grass land, area of resident land, and temporary land, respectively. Almost these land resources variables show positive effects on household expenditure per capita. Furthermore, a household can get higher welfare with rice cultivation land, the perennial crop areas such as coffee, cashew, rubber, and the water surface areas. This result also implies that households that have more land tend to have a higher income than the others that have less.

Remittance

The remittance contributes significantly to the living standard of rural people. This is a resource for the rural development in Vietnam. The result can be found in the variable of *REMITANCED.* Households that have members working in the urban or oversea can send back money home for living expense or production investment. Almost all the households get remittance from their family member (87%). However, it is not significant to increase household expenditure.

Infrastructure facilities

The ability to access basic infrastructure facilities such as road and electricity is significantly increased with household welfare. The infrastructure facility variables are *ROADV, POST, ELECTRIC,* and *INTERMART*. The local road and electricity plays an important role in household expenditure and rural development. This indicates that the government should afford to provide the basic infrastructure to the whole country.

Spatial Income disparity

Vietnam country is economically and ecologically divided into 8 regions. Each region has different natural and socio-economic characteristics. Therefore, settlement in each region has some advantages and disadvantages for economic development. Locations of resettlement also affect household expenditure. In addition, the mountainous or remotes areas considered being less productive areas with poor access to infrastructure, health and education facilities. This resulted in lower living standards compared to other regions (Kang & Imai, 2010). The location where the people live affects differently on the household's economic situation. For example, (Kang & Imai, 2010) stressed that the ethnic minority group living in the Mekong Delta and the South East coast benefit more than those living in the mountainous areas. Lastly, the empirical result shows the North Central Coastal is at a disadvantage because they have lower economic returns than others. In the Northwest, most of the land is less fertile and the households suffer from the natural disasters almost every year. Therefore, people living there tend to have low income. Furthermore, the industries and services are underdeveloped, which is another reason for the low income in the region.

CONCLUSIONS AND POLICY IMPLICATIONS

The factors that affect the regional disparity in rural areas of Vietnam are associated with household characteristics and resources. In order to shorten this gap, policy should be improved by creating more capacity for the ethnic household to strengthen their access to education, land resources and the services for economic development. This result is similar to the findings of (Walle & Gunewardena, 2001) using the VHLSS 92-93. It can be concluded that the dimensions of disparity have not changed since 1990s. However, the results show the effects of regional differences to household income. The reason is some regions in Vietnam have more disadvantage than the others in terms of improving their living standard. Therefore, the economic development policy should focus on the comparative advantage of its region to shorten the gap and create more returns to the disadvantage regions. The empirical analysis shows that North Central Coastal has negative impact on the household welfare. This result does not absolutely follow the hypothesis that the poor concentrate in the highland. It is an important point for the decision makers to shorten the gap between regions of the country.

For economic development in the rural areas, (1) improving the education level is important for decree the disparity in the rural areas, (2) increasing the production of the cash crops, fishery, (3) improving the infrastructure facilities, and (4) giving more priority to the les developed region such as the North Central Coastal are the recommendations from these research results.

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REFERENCES

Adger, W. N. (1999). Exploring income inequality in rural, coastal Viet Nam. *Journal of Development Studies, 35*(5), 96 - 119.

Baulch, B. (2008). The economic development of ethnic minorities in Viet Nam.

Blinder, A. S. (1973). Wage Discrimination: Reduced Form and Structural Estimates. *Journal of Human Resources, Vol. 8*(4), pp: 436-455.

Business-in-Asia (Producer). (2007). Map of industrial zones and export processing zones in Vietnam. Retrieved from http://www.business-in-asia.com/countries/vietnam_industrial_zones.html

. Economic Integration and Vietnam's Development: Final Report. (2009): IBM Belgium in associated with DMI, Ticon & TAC.

Epprecht, M., Müller, D., & Minot, N. (2009). How remote are Vietnam's ethnic minorities? An analysis of spatial patterns of poverty and inequality. *The Annals of Regional Science*, 1-20. doi: 10.1007/s00168-009-0330-7

Fields, G. S. (2003). Accounting for Income Inequality and Its Change: A New Method, with Application to the Distribution of Earnings in the United States. *Worker Well-Being and Public Policy (Research in Labor Economics, Volume 22)*, pp 1-38.

Fields, G. S., & Yoo, G. (2000). Falling Labor Income Inequality in Korea's Economic Growth: Patterns and Underlying Causes. *Review of Income and Wealth, Series 46*(2), pp 139-159.

Gunderson, M. (1989). Male-Female Wages Differentials and Policy Responses. *Journal of Economic Literature, Vol. 27*(1), pp: 46-72.

Haughton, J., & Khandker, S. R. (2009). *Handbook on Poverty and Inequality*. Washington, DC: The World Bank.

Heltberg, R. (2003). Spatial Inequality in Vietnam: A Regression-based Decomposition: World Bank.

Heshmati, A. (2004). A Review of Decompostion of Income Inequality: Institute for the Study of Labor.

Hoa, V. X. (Producer). (2008). The Party and the State's ethnic policies for securing the rights of ethnic minorities in Vietnam. Retrieved from http://cema.gov.vn/modules.php?mid=1692&name=News&op=detailsnews

Hodgson, A. (Producer). (2007). Unequal regional development in Vietnam. Retrieved from http://www.euromonitor.com/Unequal_regional_development_in_Vietnam

ICEM. (2007). Analysis of Pollution from Manufacturing Sectors in Vietnam: International Centre for Environmental Management.

Kang, W., & Imai, K. S. (2010). Pro-Poor Growth, Poverty and Inequality in Rural Vietnam: The University of Manchester.

Kiwipedia (Producer). (2010, Nov 11 2010). Chương trình hỗ trợ các huyện nghèo. Retrieved from http://vi.wikipedia.org/wiki/Ch%C6%B0%C6%A1ng_tr%C3%ACnh_h%E1%BB%97_tr%E1%BB%A3_c%C3%A1c_huy%E1%BB%87n_ngh%C3%A8o

Decision No. 492/QD-TTg dated April 16, 2009 of the Prime Minister on major orientations for socio-economic development of the Mekong Delta key economic region (2009).

Morduch, J., & Sicular, T. (2002). Rethinking Inequality Decomposition, with Evidence from Rural China. *Economic Journal, Vol. 112*, pp 93-106.

Oaxaca, R. (1973). Male-Female Wage Differentials in Urban Labor Markets. *International Economic Review, Vol. 14*(3), pp: 693-709.

Psacharopoulos, G., & Patrinos, H. A. (1994). Indigenous People and Poverty in Latin America: *An Empirical Analysis Work Bank Regional and Sectoral Studies*. Washington, DC.: Work Bank.

Shorrocks, A. F. (1980). The Class of Additively Composable Inequality Measures. *Econometrica, Vol. 48*(4), pp: 613-626.

Shorrocks, A. F. (1982). Inequality Decompositions by Factor Components. *Econometrica, Vol. 50*(1), pp: 193-212.

Vandermoortele, M., & Bird, K. (2010). Viet Nam's Progress on Economic Growth and Poverty Reduction: Impressive improvements *Development Progress Stories*: Oversea Development Institute, the U.K.

Vietnamplus (Producer). (2009). New proposals to reduce poverty rate. Retrieved from http://en.vietnamplus.vn/Home/New-proposals-to-reduce-poverty-rate/200912/5322.vnplus

Decision No. 145/2004/QD-TTg dated August 13, 2004 of the Prime Minister on major orientations for socio-economic development of the Northern key economic region till 2010, with a vision to 2020 (2004a).

Decision No. 146/2004/QD-TTg dated August 13, 2004 of the Prime Minister on major orientations for socio-economic development of the Southern key economic region till 2010, with a vision to 2020 (2004b).

Decison No. 148/2004/QD-TTg dated August 13, 2004 of the Prime Minister on major orientations for socio-economic development of the central Vietnam key economic region till 2010, with a vision to 2020 (2004c).

Walle, D. v. d., & Gunewardena, D. (2001). Sources of ethnic inequality in Viet Nam. *Journal of Development Economics, 65*(1), 177-207.

Wan, G. (2004). Accounting for Income Inequality in Rural China: A Regression-based Approach. *Journal of Comparative Economics, Vol 32*, pp 348-363.